



RECEIVED

JAN 22 2004

TECH CENTER 1600/2900

1A. MOUSE AIOLOS cDNA SEQUENCE

CACGAGCGCACACCGCTCGGCTCCCTCGACACGCCCTCATCCCCGGTGT
TCTCAAGTAGACGTCGGAGACGGCTGAGGCACTGTTCCACGCGATCA
GGGTTCTCAGGCTTGACATTCAAAGTGGGTGCGGAACCCGCGGACTCGG
AGCGTGTAAAGCGGCCAGCCAGCGCCGCTTAACCTCGCGCCCCGG
CTGCCGGCGCTCCGCCCTGCATCTGCCGACGCGACCGAGCGATCCCGG
GCCCTCCCTGCGCCCGGAATCTCCCAGCCAGCGCGGGTCCCCACGGCAGC
AGCACGTGGAGCGGCCGGAGCCTGAGCGACAGCTGCAGCCCGCGGCC
CGCGCGACATGGAAGATATAACACGACTGTGGAGCTGAAAAGCACGGAG
GAGCAGCCTCTGCCAACAGAGAGCCCAGACGCTCTGAATGACTACAGCTGC
CCAAACCTCATGAGATAGAAAACGTGGACAGTAGAGAAGCCCCAGCCAATG
AAGACGAAGATGCAGGAGAAGATTGATGAAAGATGAATACAGCG
ACAGAGATGAGAACATTATGAAGCCGGAGCCATGGGAGATGCAGAAGAGA
GTGAAATGCCCTACAGCTATGCAAGAGAACAGCGACTATGAAAGCATTAA
GCTGGAGAGACACGTGCCCTATGACAACACAGCAGACCAACCAGTGGGAAGAT
GAAC TGCGACGTGTGCCGGTATCCTGCATTAGCTTCAACGTCTGATGGTTC
ATAAGCGAAGCCATACCGCGAACGCCCTCCAGTGTAAATCAGTGCAGGGGC
ATCTTTACTCAGAAAGGTAACTCCTCCGTATATTAAACTGCACACGGGGG
AAAAACCTTTAAGTGTCACCTCTGCAACTACGCATGCCAAAGGAGAGATGC
GCTCACGGACACCTTAGGACACATTCTGTGGAGAACCGTACAAGTGTGAG
TTCTCGGAAGAAGCTACAAGCAGAGAACGCTCCCTGGAGGAGCACAAGGAA
CGCTGCCGAGCTTCTCAGAACCCCTGACCTGGGGACGCTGCAAGTGTGG
AGGCAAGACACATCAAAGCGAGATGGGAAGTGGAGAGAGCTCTCGTCTGG
ACAGATTAGCAAGCAATGTGGCTAACGAAAAAGCTCGATGCCCTCAGAAATT
CATCGGTGAGAACGGCACTGCTCGATGCCACTAACATCCCGCTACATG
TACGAGAAGGAGAACGAGATGATGCAGACCCGGATGATGGACCAAGCCATC
AATAACGCCATCAGCTATCTAGGGCTGAAGCCTCCGCCCTAGTCCAGA
CTCCGCCTGCTCCCACCTCTGAGATGGTCCAGTCATCAGCAGTGTGTACCCC
ATAGCACTACTCGGGCCGATATGCCAATGGGGCCCCGCAgGAGATGGAAA
AGAAACGGATCCTCTGCCAGAGAACGATCTGCCTCTGAACGAGGTCTGTC
CCCCAATAACAGTGCCAGGACTCCACAGACACCGACAGCAACCACGAGGAT
GCCAACATCTCTACAGCAAAGCCACGTGGCTCCCTCCCCAGGCCGCAATG
GGATGCCTCTCTGAAGGAGGTCCCTCGCTCTTGAACCTCTCAAGCCCCCT
CCCATCTGCCCTGAGGGACTCCATCAAAGTGTCAACAAAGAAGGGAGGTGA
TGGATGTGTTCGATGTGACCACTGCCACGTCCCTCTCCTAGATTATGTGATG
TTCACCATCCACATGGGGGCCATGGTTCCGTGATCCCTTGAGTGTAAACAT
GTGTGGCTATCGAACGCCAGATCGCTATGAGTCTCCTCTCACATGCCAGAG
GAGAGCACAGAGCCATGTTGAAGTGGAGCATCTGTCCCTCAATGCGAGGGTCAA
CATTGTTTTAAAGCTGATGGTAGCCTATCCAGTAGACTGAACCAAACCC
ACCTCGAG

FIG. 1A



RECEIVED

JAN 23 2004

TECH CENTER 1600/2900

1B. MOUSE AIOLOS PEPTIDE SEQUENCE

MEDIQPTVELKSTEEQPLPTESPDALNDYSLPKPHEIENVDSREAPANEDEDAGED
 SMKVKEDEYSRDRDENIMKPEPMGDAESEMPYSYAREYSDYESIKLERHVPYDNS
 RPTSGKMNCDCVGLSCISFNVLVMVKRSHTGERPFQCNQCGASFTQKGNNLLRHI
 KLHTGEKPKCHLCNYACQRRDALTGHLRTHSVEKPYKCEFCGRSYKQRSSLEE
 HKERCRAFLQNPDLGDAASVEARHIKAEMGSERAVLDRLASNVAKRKSSMPQ
 KFIGEKRHCFDANYNPGYMYEKENEMMQTRMMDQAINNAISYLGAEAFRPLVQ
 TPPAPTSEMVPVISSVYPIALTRADMPMGAPQEMEKKRILLPEKILPSERGLSPNN
 SAQDSTDTSNHDERQHLYQQSHVVLQPQARNGMPLLKEVPRSFEKKPPPICLRD
 SIKVINKEGEVMDVFRCDHCHVLFLDYVMFTIHMGCHGFRDPFECNMCGYRSH
 DRYEFSSHIAARGEHRAMLK

FIG. 1B

1	50
aio	
Ik1 MDVDEGQDMS QVSGKE S PPV SDTPDEGDEP MPVPEDLSTT SGAQQNSKSD	
51	100
aio	
Ik1 RGMASNVKVE TQSDEENGRA CEMNGEECAE DLRMLDASGE KMNGSHRDQG	
101	150
Ik	
Ik1 NSARGKMNCD VCGLSCISFN VLMVHKRTHT GERPFQCNQC	
Ik1 SSALSGVG G GI RLPNGKLKCD ICGIVCIGPN VLMVHKRSHT GERPFQCNQC	
Ex4	
↓	
151	200
aio GASFTQKG N L LRHIKLHTGE KPFKCHLCNY ACQRRDALTG HLRTHSVEKP	
Ik1 GASFTQKG N L LRHIKLHS G E KPFKCHLCNY ACRRRDALTG HLRTHSVGKP	
Ex5	
↓	
201	250
Aio YKCEFCGRSY KQRSSLEEHK ER C R A FLQNP DLGDAASV.. E A R H	
Ik1 HKCGYCGRSY KQRSSLEEHK ERCHN Y LES M GLPGMYPVIK EETNHNEMAE	
Ex6	
↓	
251	300
Aio IKAEMGSERA LVLDRLASNV AKRKSSMPQK FIGEKRHCFD ANYNPGYMYE	
Ik1 DLCKIGAERS LVLDRLASNV AKRKSSMPQK FLGDK..CLS DMPYDSANYE	
Ex7	
↓	
301	350
Aio KENEMMQTRM MDQ.....	
Ik1 KE.DMMTSHV MDQ	

FIG. 3



Page 3 of 10
 AIOLOS GENE
 Katia Georgopoulos et al.
 09/019,348
 10284-094001

RECEIVED
 JAN 22 2004
 TECH CENTER 1600/2900

Ex7

ACTIVATION DOMAIN

1 → ACTIVATION DOMAIN 50

cAio	PPLLLVPGEK RHCFDANYNP GYMYEKENEM MQTRMMDQAI NNAISYLGAE
mAioGEK RHCFDANYNP GYMYEKENEM MQTRMMDQAI NNAISYLGAE
mIkaGD KCLSDMPYDS ANYEKE.DM MTSHVMDQAI NNAINYLGAE
cIkaDRLDLDPYDA TTNYEKENEI MQTHVIDQAI NNAISYLGAE

51 ← YAS 5 100

cAio	AVRPLVQTTPP APTSEMVPVI SSVYPIALTR AD... MPNGA PQEMEKKRIL
mAio	AC..LVQTTPP APTSEMVPVI SSVYPIALTR AD... MPMGA PQEMEKKRIL
Chul	SLRPLVQTTPP G.SSEVVPVI SSMYQLHKPP SDGPPRSNHS AQD.AVDNLL
cIka	SLRPLVQTTPP V.GSEVVPVI SPMYQLHKPH GDNQTRSNHT AQDSAVENLL

YAS 3 ← → 150

101

cAio	L..PEKILPS ERGLSPNNSA QDSTDTDNSH ED.RQHLYQQ SHVVLQPARN
mAio	L..PEKILPS ERGLSPNNSA QDSTDTDNSH ED.RQHLYQQ SHVVLQPARN
mIka	LLSKAKSVSS EREASPSNSC QDSTDTESENNA EEQRSGLIYL TNHINPHARN
cIka	LLSKAKSVSS ERDASPSNSC-QDSTDTESENNEE.RSGLIYL TNHIGPHARN

YIZ ← → 200

151

cAio	GMPLLKEVPR SFELLKPPPI CLRDSIKVIN KEGEVMDVFR CDHCHVLFLD
mAio	GMPLLKEVPR SFELLKPPPI CLRDSIKVIN KEGEVMDVFR CDHCHVLFLD
mIka	GLA.LKEEQR AYEVLRAASE NSQDAFRVVS TSGEQLKVYK CEHCRVLFLD
cIka	GIS.VKEESR QFDVLRAGTD NSQDAFKVIS SNGEQVRVYK CEHCRVLFLD

249 ← →

201

cAio	YVMFTIHM.GCHGFRDPF ECNMCGYRSH DRYEFSSHIA RGEHRAMLK
mAio	YVMFTIHM.GCHGFRDPF ECNMCGYRSH DRYEFSSHIA RGEHRAMLK
mIka	HVMYTIHM GCHGFRDPF ECNMCGYHSQ DRYEFSSHIT RGEHRYHLS
cIka	HVMYTIHM.GCHGFRDPF ECNMCGYHSQ DRYEFSSHIT RGEHRFHMS

YAS 5 = interaction domain

FIG. 2

YAS 3 = interaction domain

YIZ = Ikaros dimerization domain



Page 4 of 10
AIOLOS GENE
Kátia Georgopoulos et al.
09/019,348
10284-094001

RECEIVED
JAN 29 2004
TECH CENTER 1600/2800

Exon 3

[REHEEAPANEDAGEDSMKVKEDEYSDRDENIMKPEPMGDAEESEMPYSA
REYSDYESIKLERHVPYDNSRPTSGKMNCDVCGLSCISFNVLMVHKRSHT]

Exon 4

[GERPFQCNQCGASFTQKGNLLRHIKLHTGEKPFKCHLCNYACQRDALTGH
LRTHS]

Exon 5

[VEKPYKCEFCGGRSYKQRSSLEEHKERCRAFLQNPDLGDA]

Exon 6

[ASVEARHIKAEMGSERALVLDRLASNVAKRKSSMPQKF]

Exon 7

[GEKRHCFDANYNPGYMYEKENEMMQTRMMMDQAINNAISYLGAEAFRPLVQ
TPPAPTSEMVPVISSVYPIALTRADMPMGAPQEMEKKRILLPEKILPSERG
LSPNNISAQDSTDTSNHEDRQHLYQQSHVVLQPQARNGMPLKEYPRRSFEL
LKPPPICLRSIKVINKEGEVMDVFRCDHCHVLFLDYVMFTIHMGCHGFRD
PFECNMCGYRSHDRYEFSSHIARGEHRAMLK]



FIG. 4



RECEIVED
JAN 22 2004
CENTER 1600/2900

FIG. 5A



Lipman-Pearson Protein Alignment

kTuple: 2; Gap Penalty: 4; Gap Length Penalty: 12

Seq2(1>508)
human A1alpha protein A1αC^b-A1α-2

human Aiolos protein AioC/hAlo2 mouseAiolos.p
(1>209) (66>273)

卷之三

ERDENYL SEP
: ROEN: : K: EP
: SODA: : M: SEP

DRDENIMKIEP
Haussealios. protein

human A10s protein AiOC/hA1o2
mouseaiolos.protein
SCISFNYLMVH
SCISFNYLMVH
SCISFNYLMVH

human Aiolos protein AioC/hAio² RPA-TGH-BTH

mouseaiolos;protein

human Aiolos protein $\text{Al}^{10}\text{C}/\text{hA}^{10}\text{O}^2$

mouseaiolos.protein AEMGSERALV AEMGSERALV AEMGSERALV

Seq(1>209) human Aiolos protein AioC/hAio2	Seq(1>508) mouseaiolos.protein	Similarity Index	Gap Length	Gap Number	Concensus Length
(1>209)	(66>273)	89.5	1	1	209

human Aiolos protein AioC/hAio2	SCISFNYLMYHKSHTGERPFOCNQCGASFTQKGNLRLRHIKLHTGEKPFKCHLCNYACQR	120
mouseaiolos.protein	SCISFNYLMYHKSHTGERPFOCNQCGASFTQKGNLRLRHIKLHTGEKPFKCHLCNYACQR	184
	SCISFNYLMYHKSHTGERPFOCNQCGASFTQKGNLRLRHIKLHTGEKPFKCHLCNYACQR	

human Aiolos protein AioC/hAio2
mouseaiolos.protein

RDALTGHLRTHSVEKPYKCEFCGRSYKQRSSLEEHKERCRTFLASTDPGDTASAEARHIK	180
RDALTGHLRTHSVEKPYKCEFCGRSYKQRSSLEEHKERCR: FLD: D GD: AS. EARHIK	
RDALTGHLRTHSVEKPYKCEFCGRSYKQRSSLEEHKERCRFLQNPDLGDAASVEARHIK	244

FIG. 5B

human At00s protein	AEMGSERALVLDRLASNYÅKRKSSMPQKF	209
mouseaiolos.protein	AEMGSERALVLDRLASNYÅKRKSSMPQKF	273

FIG. 5B

RECEIVED
JAN 22 2004
TECH CENTER 1600/400



RECEIVED

JAN 22 2004

TECH CENTER 1600/2020

1 MEDIQPTVELKSTEEQPLPTESPDALNDYSLPKPHEIENUDSREAPANED 50
 ::: . : . . . |
 MDVDEGQDMSQUSGKESPPUSDTPDEG..DEPMMPUPEDLSTTSG..AQQNSK 48

 51 EDAGEDS|KUKDEYSRDRDEN|HKPEPHGDAAESEMPYSYAREYSYESIK 100

 49 SDRGMAS.NUKUETQSDEENGRCACEMNGEECAEDLRMLDASGEKMNGSHR 97

 101 LERHUPY...DNSRPTSGKMNDDUDGLSCI|SFNULMUKRSHTGERPFQD 147
 :
 98 DQGSSALSGUGGIRLPNGKLKD|GIUCIGPNULMUKRSHTGERPFQD 147

 148 NQDGASFTQKGNLRAH|IKLHTGEKPFKDHLDNYACQRRAALTGHLRTHSU 197
 |||||||
 148 NQDGASFTQKGNLRAH|IKLHSGEKPFKDHLDNYACQRRAALTGHLRTHSU 197

 198 EKPYKDEFDGRSYKQRSSLEE|KERDRAFLQNPDGLDAASU.....E 239
 :||.||::|||||||||||||||.|||||||.|||||||.|||||||.|||||||.|||
 198 GKPHKDGYSYKQRSSLEE|KERDHNYLESMGLPGUCPUIKEETNHNE 247

 240 ARHIIKAEMGSERALULDRLASNUAKRKSSMPQKF|GEKRHCFDANYNPGY 289

 248 MAEDLCKIGAERSLULDRLASNUAKRKSSMPQKFLGDK..CLSDMPYDSA 295

 290 NYEKENEMMQTRMMMDQAINNAISYLGAEAFRPLUQTPPPAPTSEMUPVISS 339
 ||||| :||
 296 NYEKE.DMMTSHUMDQAINNAINYLGRESLRPLUQTPPGS.SEVUPVISS 343

 340 UYPIALTRADMPM...GAPQEMEKKRILLPEKILPSERGLSPNNSAQDS 385
 :|..
 344 MYQLHKPPSDGPPRSNHSAQDADUNLLLLSKAKSUSSEREASPSNSCQDS 393

 386 TDTDSN.HEDRQHLYQQSHUULPQARNGMPLLKEUPRSFELLKPPPICLR 434
 ||||| :||
 394 TDTESNAAEQRSGLIYLTNHINPHARNGLA.LKEEQRAYEVLRRAASENSQ 442

 435 DS|KUINKEGEUMDUFRD|OH|HULFLDYUMFT|HMGCHGFRDPFEDNMCG 481

 443 DAFRUUUSTSGEQLKUYKDEH|DRULFLDHUMYT|HMGCHGFRDPFEDNMCG 492

 482 YRSHDRYEFSSH|ARGEHRAMLK 507
 :|:|||||||.|||||||.||.
 493 YHSQDRYEFSSH|TRGEHRYHLS 518

FIG. 6

RECEIVED
JAN 22 2004
TECH CENTER 1600/2900

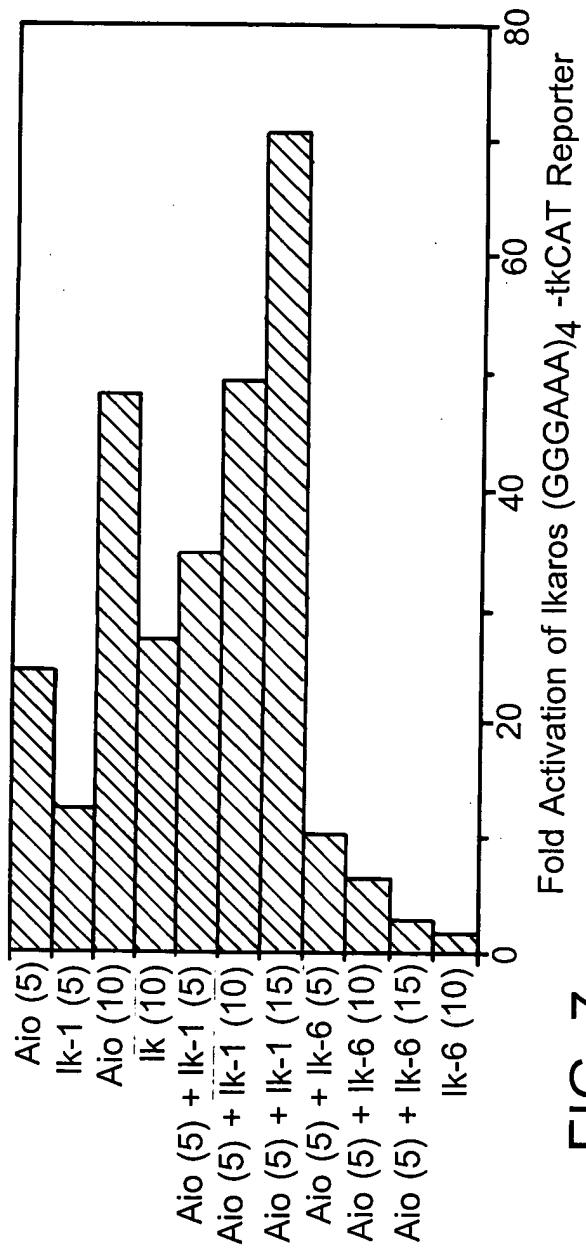


FIG. 7



RECEIVED
 JAN 22 2004
 TECH CENTER 1600/2900

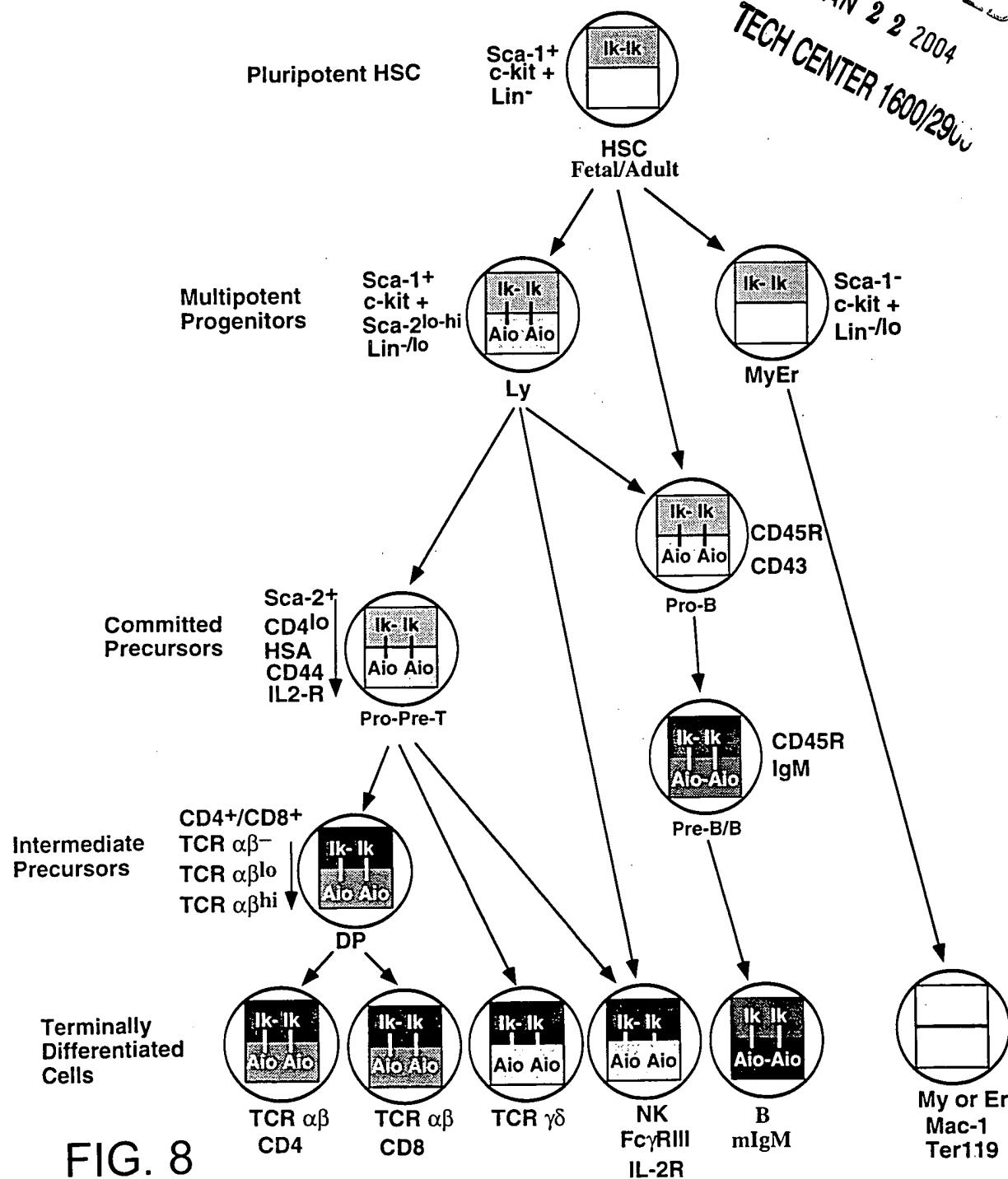
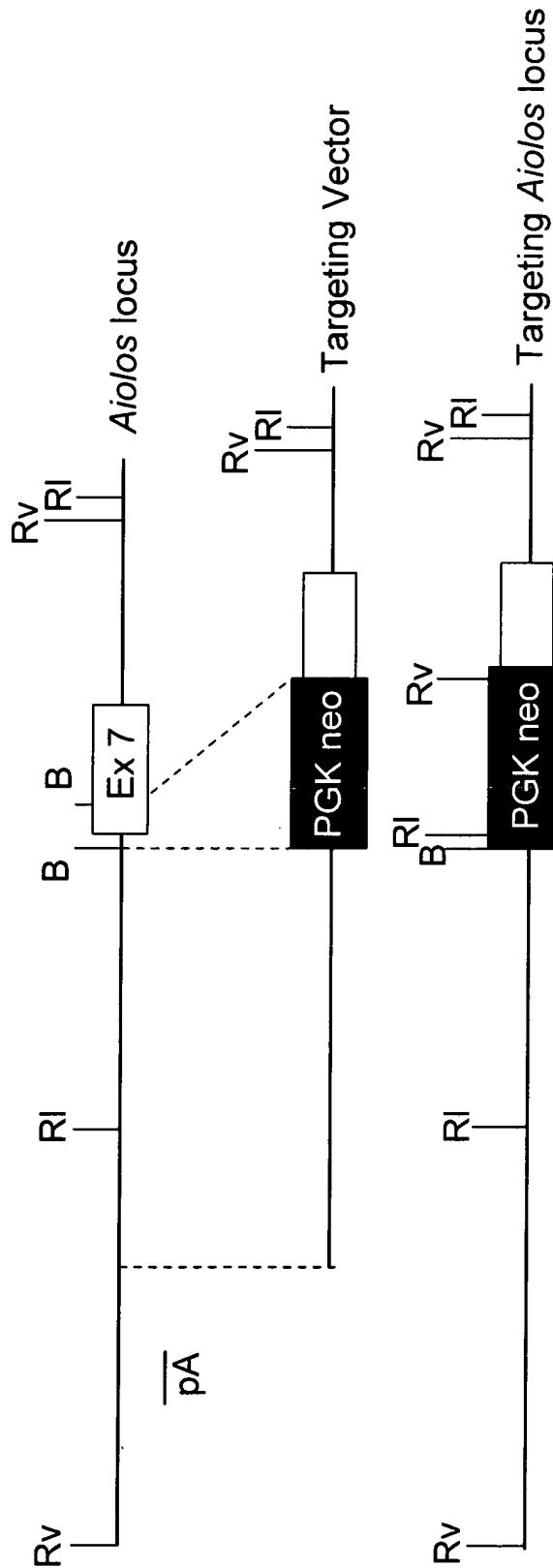


FIG. 8



RECEIVED
JAN 22 2004
TECH CENTER 1600/2900

FIG. 9